

CLAIMS

1. A selectively permeable membrane type reactor comprising a catalyst for promoting a chemical reaction, a selectively permeable membrane which selectively allows a specific component to pass therethrough, and a carrier for disposing the catalyst and the selectively permeable membrane, the carrier being a tubular body having two or more gas passages (cells) partitioned and formed by a partition wall formed of a porous body, the catalyst being individually disposed in some of the cells, the selectively permeable membrane being individually disposed in the remainder of the cells, and the cell (reaction cell) in which the catalyst is disposed and the cell (recovery cell) in which the selectively permeable membrane is disposed being adjacently disposed.
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2. The selectively permeable membrane type reactor according to claim 1, wherein the carrier includes the cells partitioned and formed by the partition wall with a thickness of 10 μm to 3 cm.
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3. The selectively permeable membrane type reactor according to claim 1 or 2, wherein the catalyst is a pellet-shaped or bead-shaped catalyst, and is disposed in the carrier by filling the cell of the carrier with the pellet-shaped or bead-shaped catalyst in a packed bed manner.
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4. The selectively permeable membrane type reactor according to claim 1 or 2, wherein the catalyst is in the shape of a thin film and is disposed in the carrier by forming the catalyst in the shape of a thin film on a surface of the partition wall which partitions and forms the cells of the carrier.
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5. The selectively permeable membrane type reactor according to any of claims 1 to 4, wherein the carrier includes one center cell disposed to include a center axis of the carrier and two or more peripheral cells disposed adjacent to the center cell on a periphery of the center cell, the catalyst is disposed in either the center cell or the 5 peripheral cells, and the selectively permeable membrane is disposed in the another.

6. The selectively permeable membrane type reactor according to any of claims 1 to 5, wherein the carrier is a tubular body with a square, rectangular, or regular hexagonal end face.

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7. A selectively permeable membrane type reactor comprising a plurality of the selectively permeable membrane type reactors according to claim 6, the selectively permeable membrane type reactors being integrated to form a composite reactor.